

SECTION 07110 -MEMBRANE WATERPROOFING (Below Grade and  
Between Slab)

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Section 00700.

1.02 GENERAL REQUIREMENTS

The Contractor shall be an approved applicator of the manufacturer whose membrane waterproofing system he proposes to apply. He shall be familiar with the products, equipment and the specified requirements and methods needed for the proper installation of the membrane waterproofing system.

1.03 SUBMITTALS

A. The Contractor shall submit the following to the Engineer for approval:

1. Prior to the start of work, a signed certificate from the membrane waterproofing manufacturer stating that the Contractor is an approved applicator of his assemblies.
2. Six (6) copies of the manufacturer's material specifications, application instructions and Material Safety Data Sheets for the membrane waterproofing system and materials which he proposes to use.

3. Guaranty as noted under Section 1.04.

1.04 GUARANTY

The Contractor shall execute to the State of Hawaii a 2-year written guaranty that the installation will be watertight and that any leaks which develop during that period which are not due to improper use or willful damage will be repaired at no cost to the State.

1.05 PRODUCT HANDLING

A. Delivery of Materials: All materials shall be delivered to the site in the original unbroken manufacturer's wrapping material and containers with the original labels thereon intact.

B. Storage of Materials at Job Site

1. Materials shall be stored in accordance with the manufacturer's recommendations.

Be advised that the membranes noted in this section are intended for use in below-grade and between slab applications. They are not intended for use under thin-set ceramic or quarry tile floor installations.

## NOTES TO ARCHITECT

2. Materials which absorb moisture shall be kept under waterproof cover. Wet materials shall not be permitted to be used on the job and shall be removed promptly from the site.

### C. Cautions and Warnings

1. Materials containing solvents shall be stored in a dry cool area with proper fire and safety precautions.
2. Vapors from bonding adhesives, lap cements, membrane material products, etc., may be harmful if breathed in. They may also be flammable. The Contractor shall consult container labels and Material Safety Data Sheets for specific information and shall employ the necessary safety precautions needed for the products being used.

### 1.06 TESTING

- A. Horizontal membranes placed between slabs located above usable space shall be water tested for at least 24 hours under a head equal to the thickness of the floor finish to be placed atop the depressed floor slab. Any leaks shall be sealed and the membrane similarly re-tested until it is watertight.
- B. The Contractor shall notify the Engineer 24 hours in advance before membrane is tested.
- C. Fluid-applied membranes shall be subject to compliance testing by the Engineer to ensure proper thickness of application.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Asbestos Prohibition: No asbestos containing materials shall be used under this section. The Contractor shall ensure that all materials incorporated in the project are asbestos-free.
- B. Sheet Applied Membrane Systems:

Material:	Rubberized Asphalt or Butyl Rubber
Thickness:	60 mil min.
Facing Sheet:	Polyethylene or Polypropylene

Add to or delete from the listing shown to suit your project.

NOTES TO ARCHITECT

Products of the following manufacturers are acceptable provided they meet the materials and construction specified:

Nord Bitumi:	Nordtene 60
Protecto Wrap Co.:	Jiffy Seal 140/60
Polygard Products, Inc.:	Polygard 650
Polyken Technologies:	Polyken 660
QSC Products, Ltd.:	QSC-701
Royston Laboratories:	104-AHT
WR Grace & Co.:	Bituthene 3000

C. Sheet Applied Membrane Systems:

Material:	E.P.D.M. (Ethylene Propylene Diene Monomer) or Chlorinated Polyethylene (CPE)
Thickness:	60 mil min.

Products of the following manufacturers are acceptable provided they meet the materials and construction specified:

Carlisle Syntec	
Systems:	Sure-Seal EPDM
The Noble Company:	NobleSeal CP

D. Sheet Applied Membrane Systems:

Material:	High density polyethylene (20 mils thick) with bentonite facing of 1# per sq. ft.
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Products of the following manufacturers are acceptable provided they meet the materials and construction specified:

Paramount Technical	
Products Inc.	Paraseal (Below-grade application only.)

E. Fluid Applied Membrane Systems (Cold-Applied):

Material:	1 or 2 component Polyurethane
Thickness:	60 mil min.

Products of the following manufacturers are acceptable provided they meet the materials and construction specified:

Mameco International Inc.:	Vulkem 201 (moisture cure) Vulkem 222 (chemical cure)
Multi-Chemical Products, Inc.:	Mult-I-Thane 3000 Mult-I-Flex 3200 (between slab use only)
The Neogard Corporation: Pacific Polymers, Inc.:	Permagard Elasto-Deck BT (Type I or II)
Sonneborn:	HLM 5000
Tremco:	Tremco TP-60

F. Fluid Applied Membrane Systems (Hot-Applied)

Material:	Rubberized Asphalt
Thickness:	Per Manufacturer's Printed Instructions but no less than 1/8" min.

Products of the following manufacturers are acceptable provided they meet the materials and construction specified:

Hydrotech:	Monolithic Membrane 6125
Tremco:	Tremproof 150

- G. Surface Primers, Sealants, Flashings, Reinforcing Sheets, Adhesives, Asphalts, Welding Agents, etc. shall be as recommended by the membrane manufacturer for the specific project installation and shall be compatible with the substrate and membrane waterproofing with which it is in contact.

- H. Protective Layer for membrane waterproofing applied on vertical surfaces below grade shall be of inert material, compatible with the waterproofing membrane over which it is overlaid and acceptable to the membrane manufacturer. The following materials are acceptable provided the above stipulations are also met:

1. 7/16" thick glass fiberboard.
2. 1/4" thick mineral hardboard.
3. 1/4" thick fiberglass-and-asphalt protection panels.
4. Heavy-duty reinforced rubberized asphalt sheets.

NOTES TO ARCHITECT

Inert, non-biodegradable Protective Boards which are compatible with the membrane waterproofing and are of sufficient thickness and density to protect the membrane waterproofing as recommended by the protective board manufacturer may be used in lieu of the protective layer described above. The indicated products of the following manufacturers are acceptable provided they also meet the above stipulations:

Amocor:	Amocor-PB4 (Extruded Polystyrene)
Pacific Allied Products, Ltd.:	Expanded Polystyrene
Dow Chemical Company:	Styrofoam (Extruded Polystyrene)
Paramount Technical Products Inc.:	Paradrain (Polyethylene geotextile)

PART 3 - EXECUTION

3.01 INSPECTION OF SURFACES

- A. Before the work is started, the Membrane Waterproofing Installer, together with the Contractor and Engineer, shall examine the surfaces onto which membrane waterproofing is to be applied. Should any condition be found unsuitable, no work shall be done until the unsatisfactory condition has been corrected and is acceptable to the Membrane Waterproofing Installer. Proceeding with the work will imply acceptance of the conditions by the Membrane Waterproofing Installer.
- B. Materials used to patch substrate defects shall be compatible with the substrate and the membrane waterproofing.

3.02 INSTALLATION

- A. The procedures and details for the application of waterproofing membranes, especially such items as the patching of substrate defects; surface cleaning and preparation; surface priming; installation of bond breakers at joints; installation of inorganic cant strips at vertical and horizontal corners; mixing of components; number of membrane layers or coats; embedment of reinforcing sheets; details at edges, corners, laps, penetrations and discontinuities; sealing and/or fastening of the top edge of the membrane placed on vertical surfaces; protection of the membrane; repair of damage; etc., shall be in strict accordance with the manufacturer's printed instructions and recommendations.
- B. For toilets, showers and other similar areas, the membrane shall be extended 4" up adjacent vertical surfaces or 1" above the finished floor level, whichever is higher.
- C. Sheet applied membranes shall be rolled or squeegeed onto the surface to ensure total adhesion to the substrate. Wrinkles and buckles in the membrane shall be avoided.
- D. Edges and ends of sheet applied membranes shall be lapped and sealed in accordance with the manufacturer's recommendations.

- E. Adjoining surfaces which are not to receive waterproofing shall be protected to prevent spillage of liquid materials outside of the membrane area.
- F. A protective layer as specified in Sub-paragraph 2.01 G. above shall be provided over membranes on vertical surfaces below grade.
- G. The Contractor shall provide protection for horizontal between-slab membranes to prevent puncturing or damage as follows:
  - 1. Protective layer/boards shall be neatly trimmed and tightly butted together to provide a continuous cover over the membrane waterproofing.
  - 2. Care shall be taken during the backfilling operation to ensure that the membrane and protective layer/boards are not damaged.
- H. Care shall be taken to protect under-tile membranes from puncture or damage at all times until topping materials have set.
- I. Repair of any damage to the membrane waterproofing shall be in strict accordance with the manufacturer's recommendations.

3.03 CLEAN-UP

The installer shall take care to keep surfaces that will be exposed clean. At the completion of work, he shall clean all surfaces onto which waterproofing materials have been dropped, spattered, or brushed and repair damages or defects for which he is responsible. He shall also remove and properly dispose of leftover materials and debris.

END OF SECTION